

Welcome to the



Manchester Community College, Manchester NH

November 3, 2018

Schedule <http://bily/NHCC2018>

Deploying your application to AWS

(or how I learned to stop worrying and love the cloud)



Agenda

- Overview of AWS
- Simple Application
- “Complex” Containerized Application
- Metrics and dashboards
- Alarms
- Billing

About Me

Software Developer, Database Administrator and DevOps Engineer

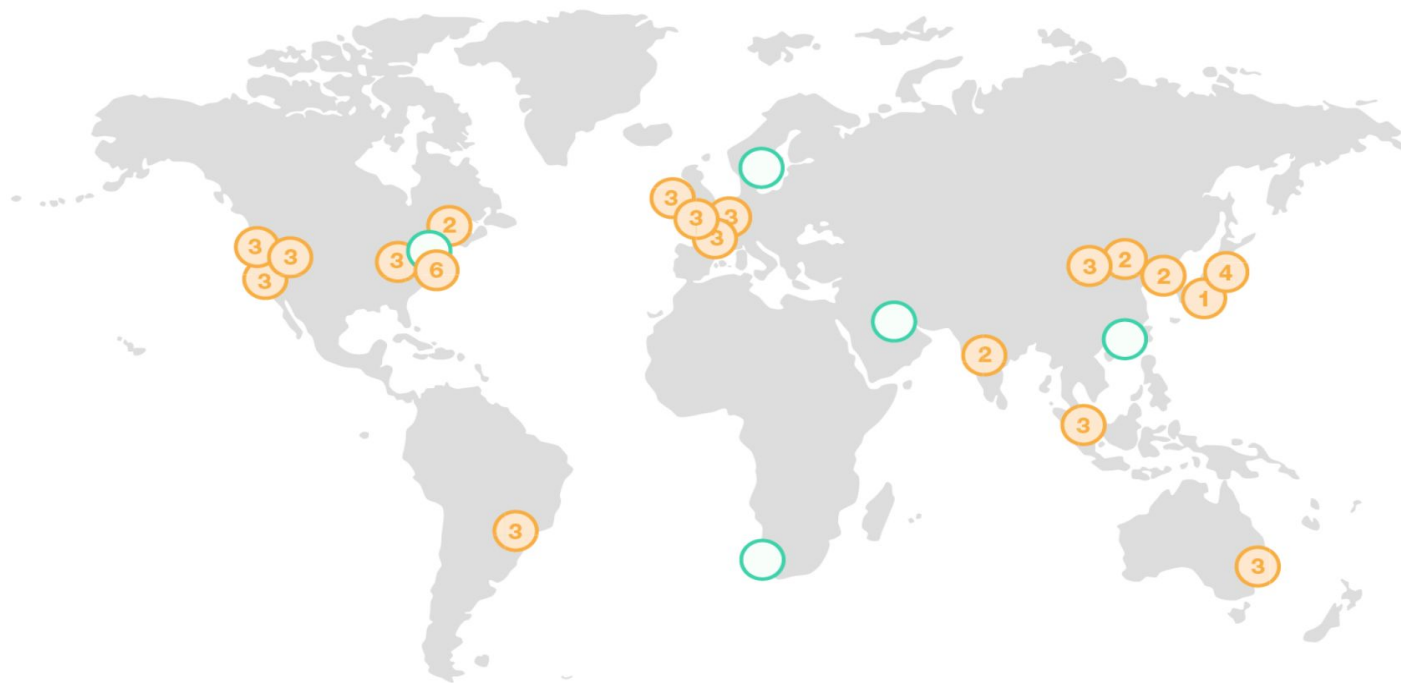
Currently employed at The Achievement Network as a Software Developer and Asst. AWS Administrator

LinkedIn: <https://www.linkedin.com/in/stevenpile/>



AWS Regions

Global Infrastructure











Region & Number of Availability Zones



New Region (coming soon)

There's a lot you can do...

 **Services**  **Resource Groups**  

 **spyle @ spyleconsulting**  **N. Virginia**  **Support** 

History

Console Home

RDS

ECS

CloudWatch

EC2

CloudFormation

Group

A-Z

**Compute**

EC2

Lightsail 

ECS

EKS

Lambda

Batch

Elastic Beanstalk

**Storage**

S3

EFS

Glacier

Storage Gateway

**Database**

RDS

DynamoDB

ElastiCache

Neptune

Amazon Redshift

**Developer Tools**

CodeStar

CodeCommit

CodeBuild

CodeDeploy

CodePipeline

Cloud9

X-Ray

**Management Tools**

CloudWatch

AWS Auto Scaling

CloudFormation

CloudTrail

Config

OpsWorks

Service Catalog

Systems Manager

Trusted Advisor

Managed Services

**Media Services**

Elastic Transcoder

**Analytics**

Athena

EMR

CloudSearch

Elasticsearch Service

Kinesis

QuickSight 

Data Pipeline

AWS Glue

**Security, Identity & Compliance**

IAM

Cognito

Secrets Manager

GuardDuty

Inspector

Amazon Macie 

AWS Organizations

AWS Single Sign-On

Certificate Manager

CloudHSM

Directory Service

WAF & Shield

Artifact

**Customer Engagement**

Amazon Connect

Pinpoint

Simple Email Service

**Business Productivity**

Alexa for Business

Amazon Chime 

WorkDocs

WorkMail

**Desktop & App Streaming**

WorkSpaces

AppStream 2.0

**Internet Of Things**

IoT Core

IoT 1-Click

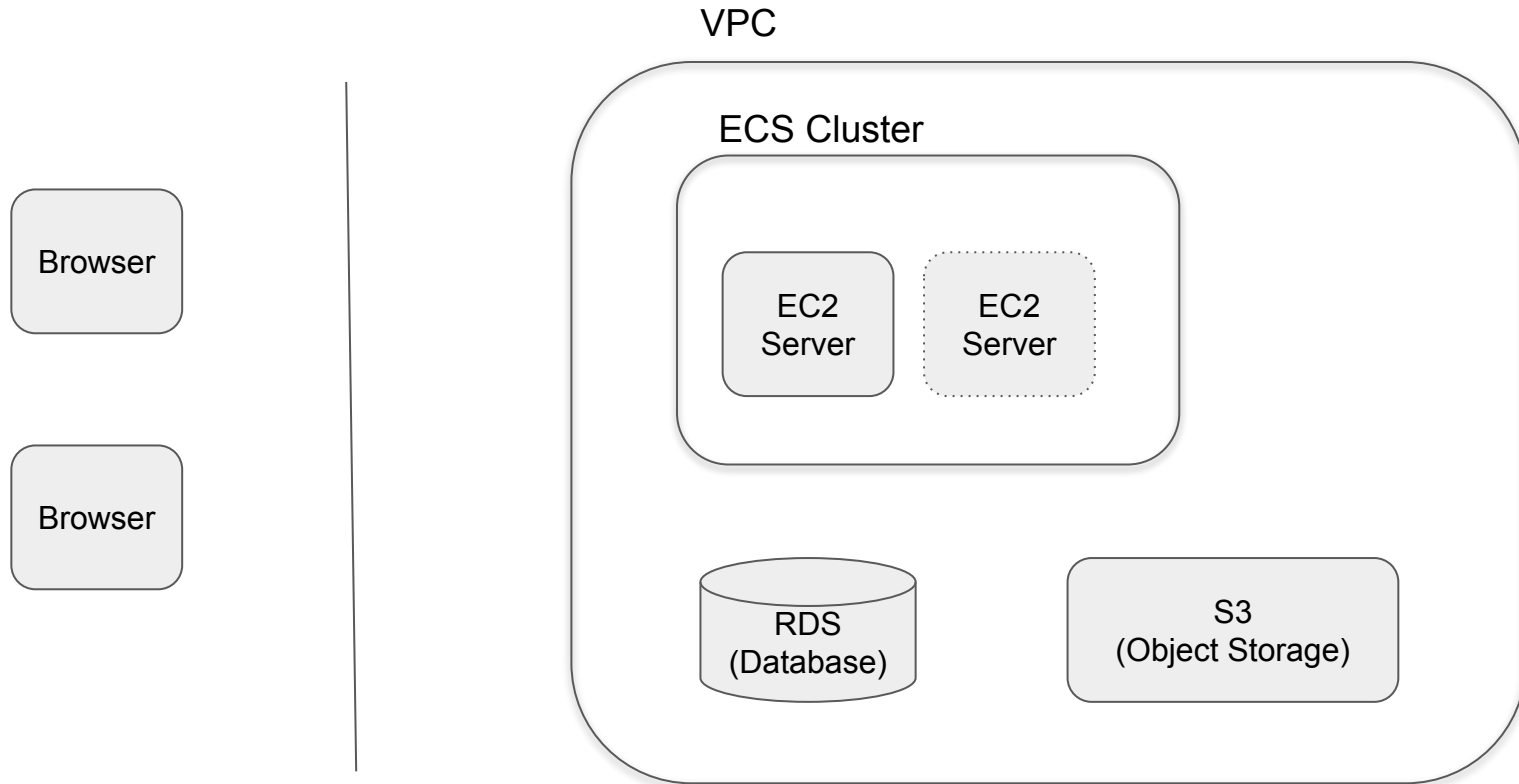
IoT Device Management

IoT Analytics

Greengrass

Amazon FreeRTOS

...Let's break it down



Elastic Beanstalk

- When you want to get started quickly
- Recommended as a good “example”
- Be aware of billing

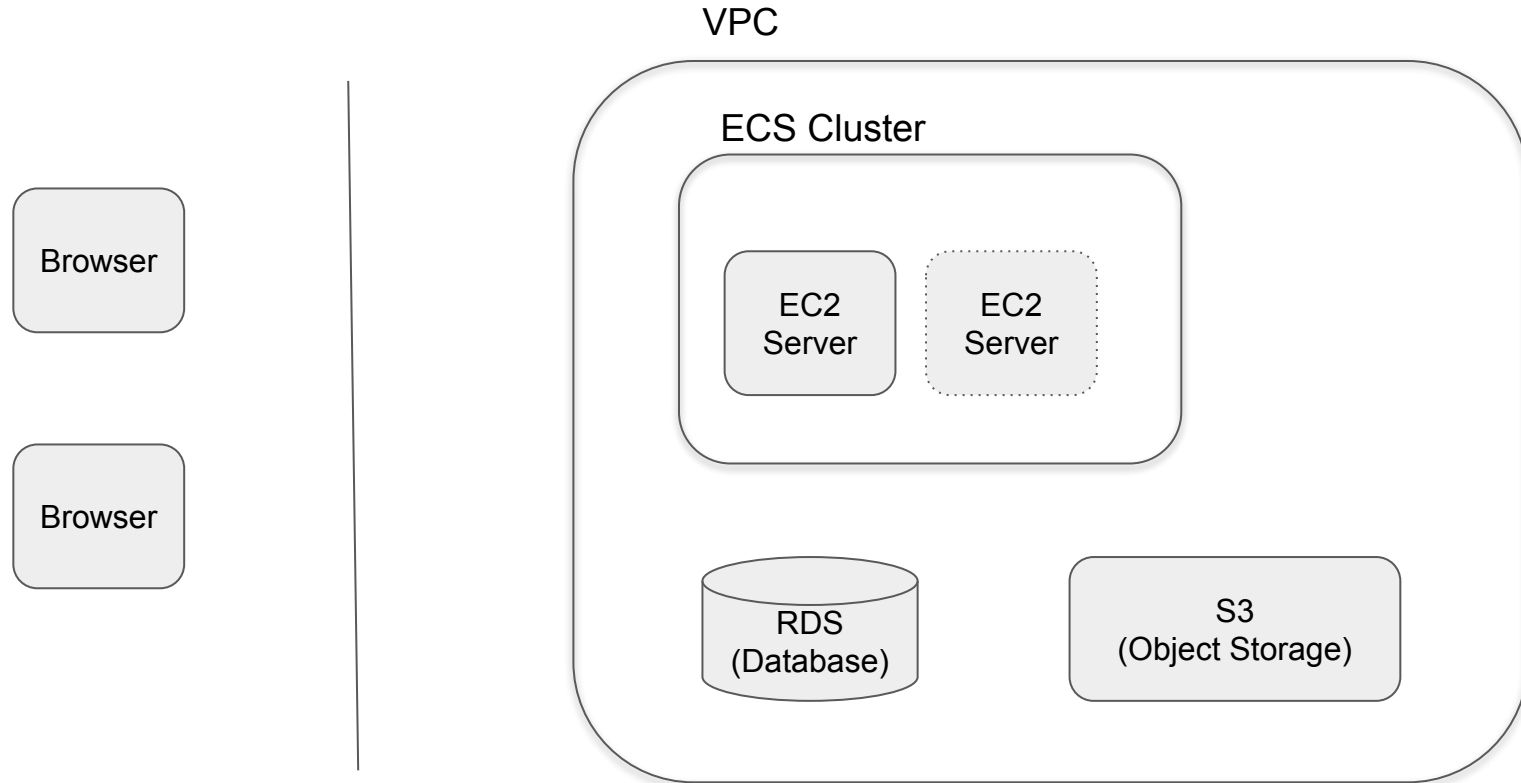
Beanstalk Home Page:

<https://console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1#/welcome>

Creating an application bundle:

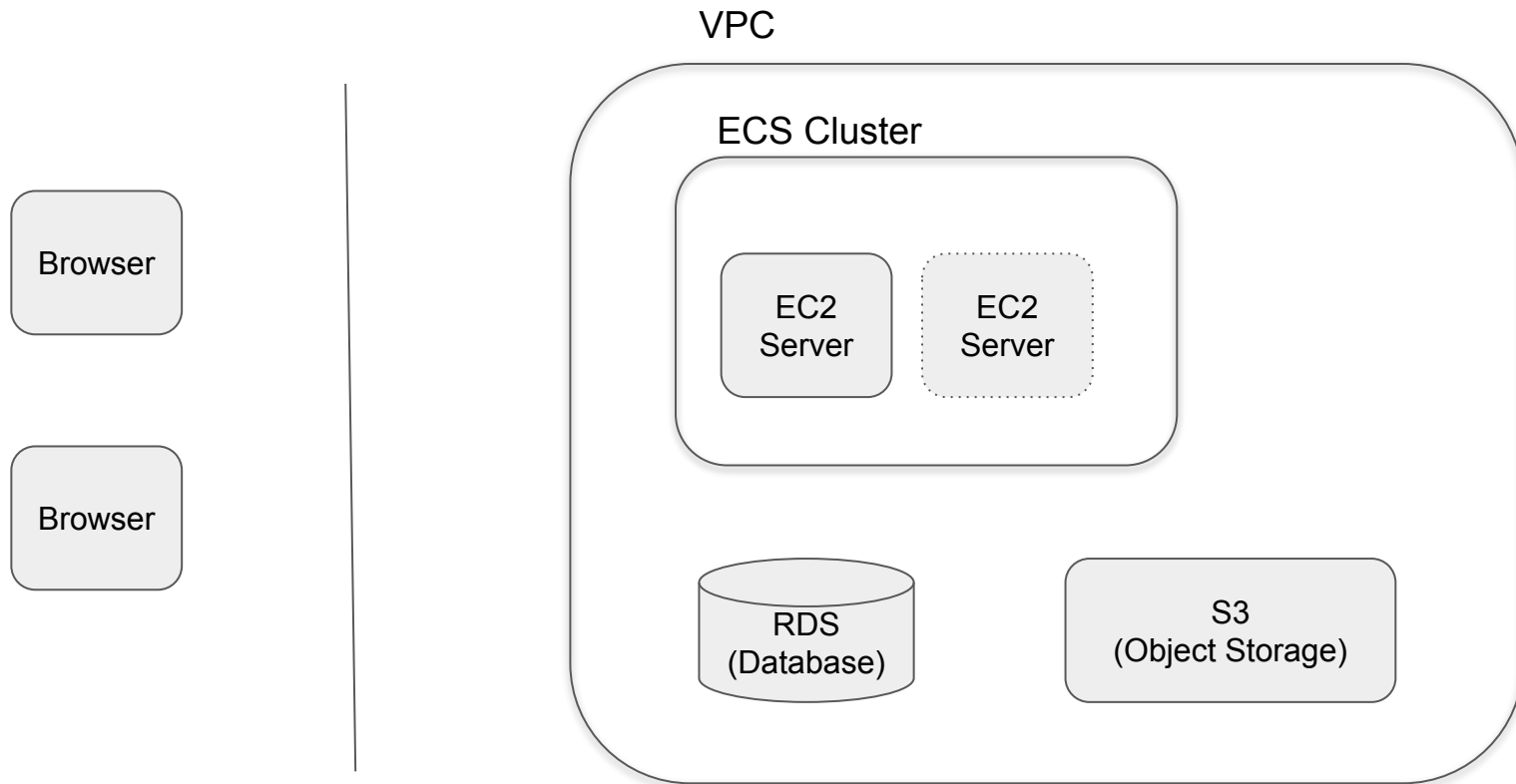
<https://docs.aws.amazon.com/elasticbeanstalk/latest/dg/applications-sourcebundle.html>

VPC - Virtual Private Cloud



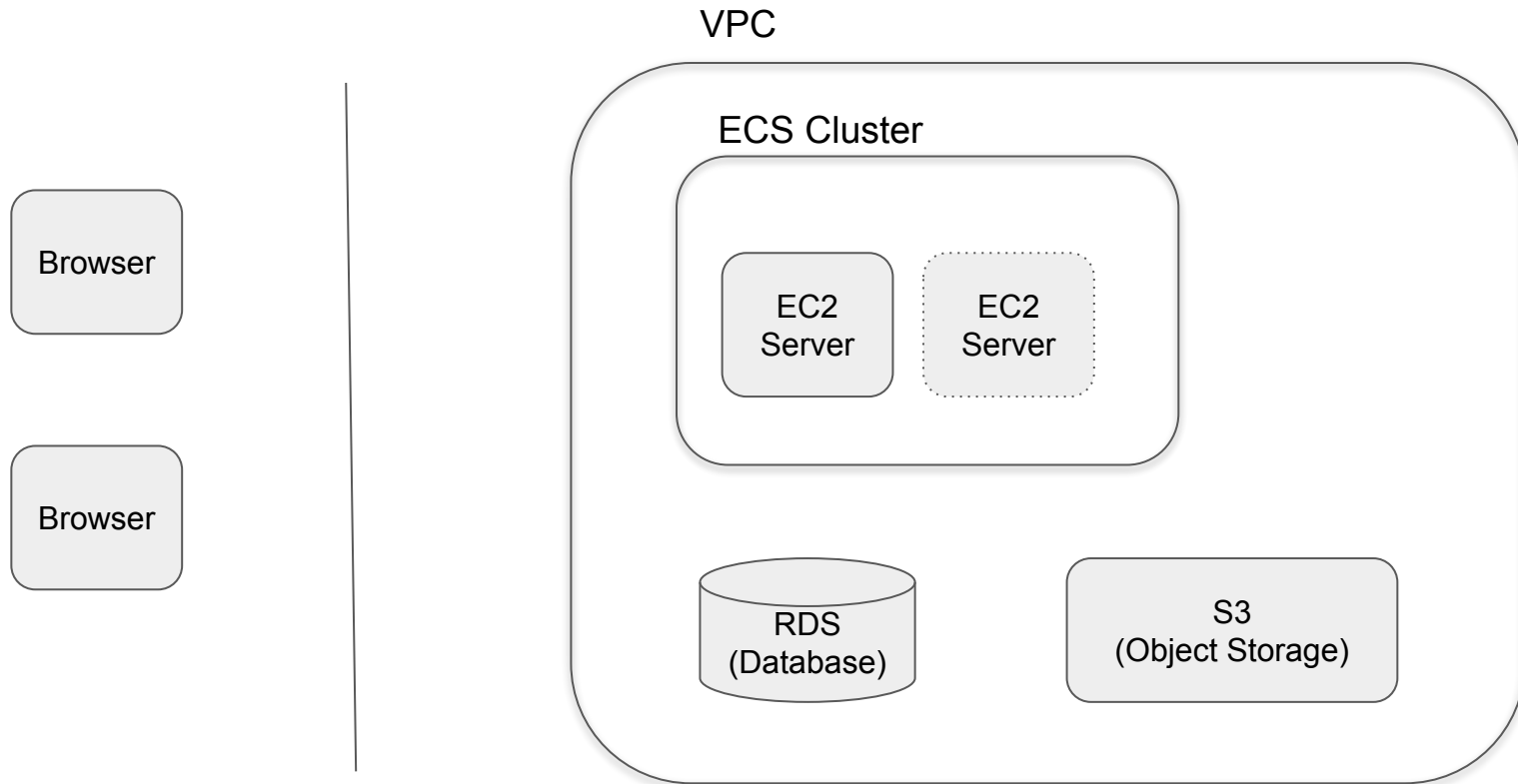
<https://console.aws.amazon.com/vpc/home?region=us-east-1#vpcs:>

ECS - Elastic Container Service



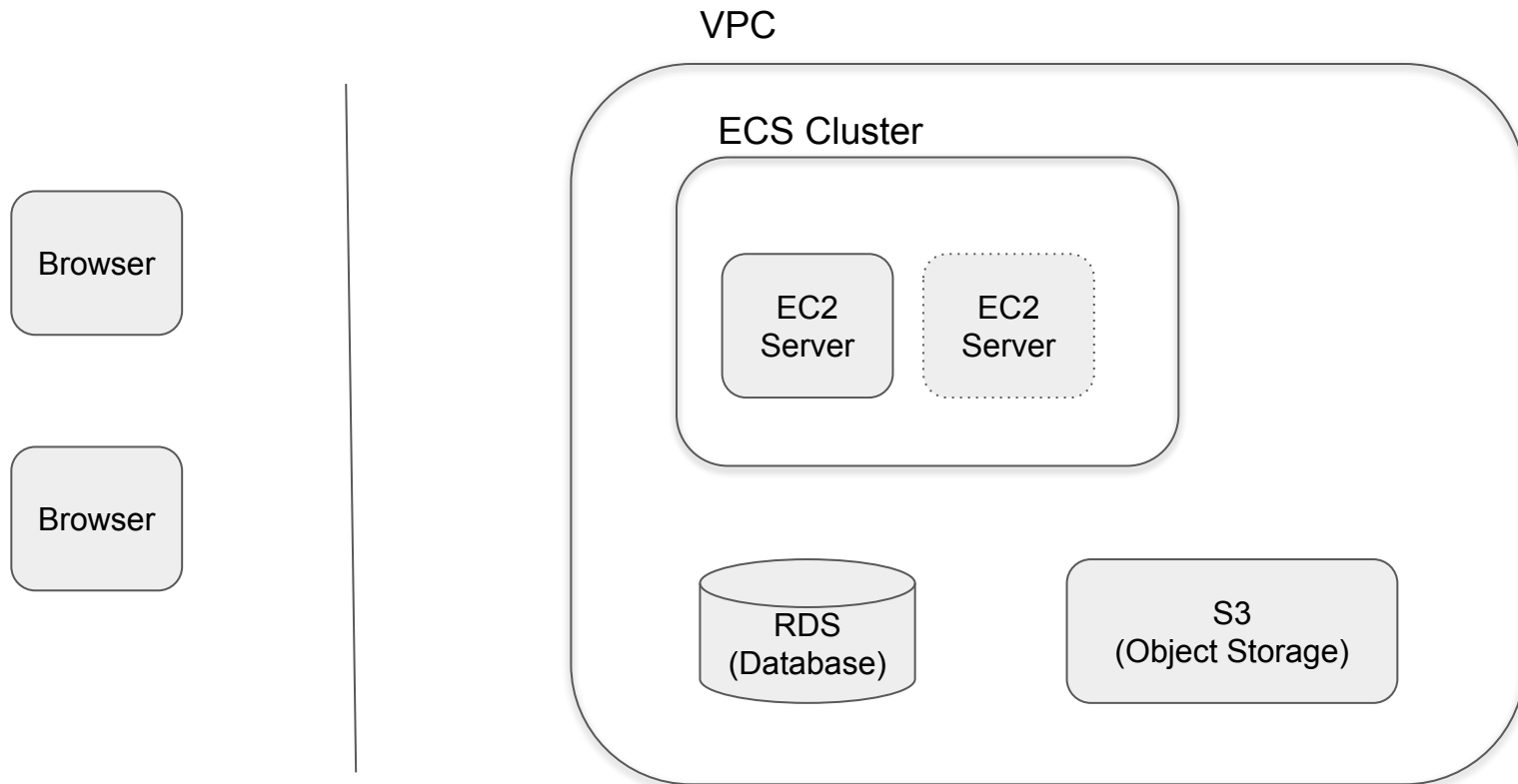
<https://console.aws.amazon.com/ecs/home?region=us-east-1#/clusters>

EC2 - Elastic Compute Cloud



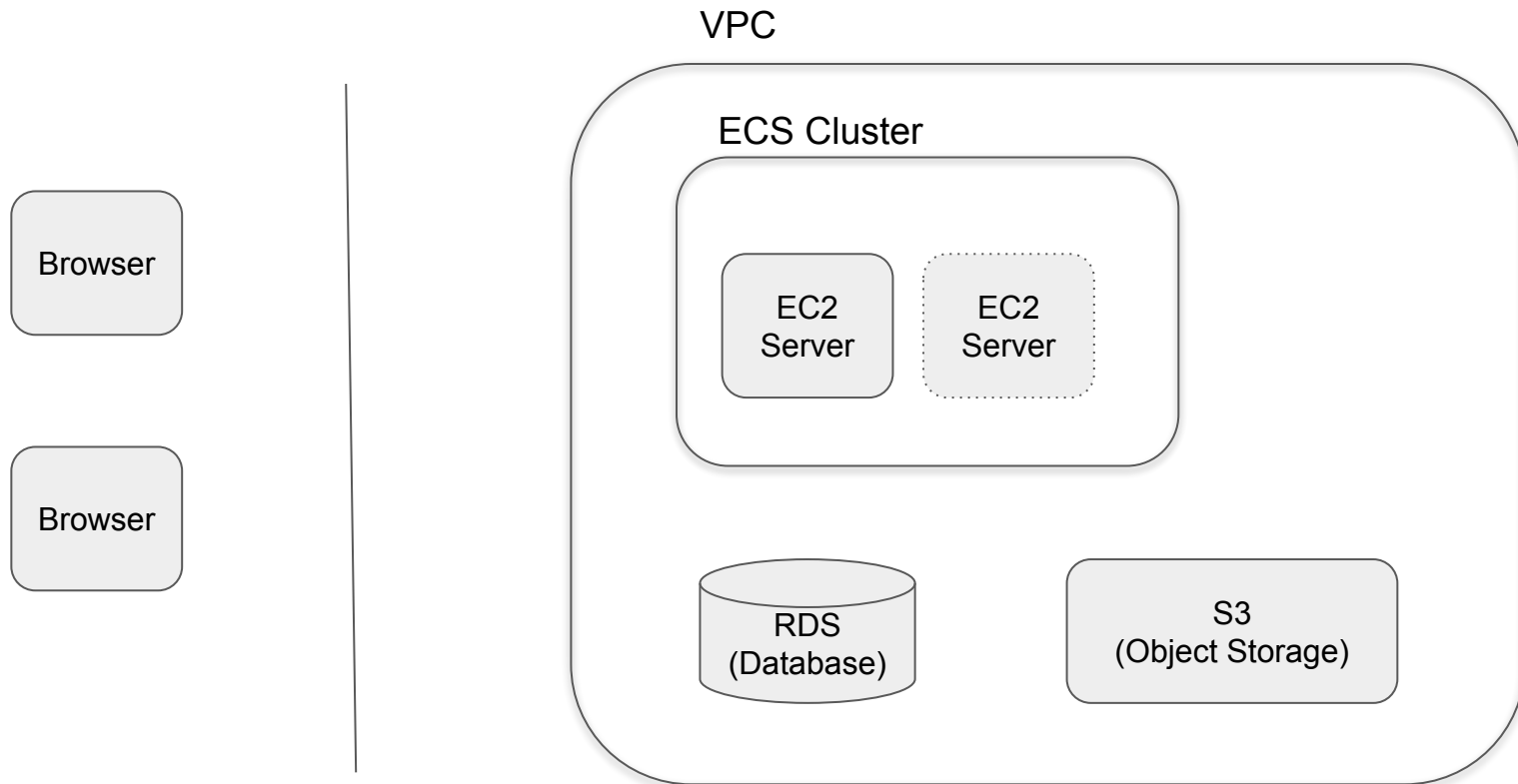
<https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Home:>

RDS - Relational Database Service



<https://console.aws.amazon.com/rds/home?region=us-east-1>

S3 - Object Storage



<https://s3.console.aws.amazon.com/s3/home?region=us-east-1>

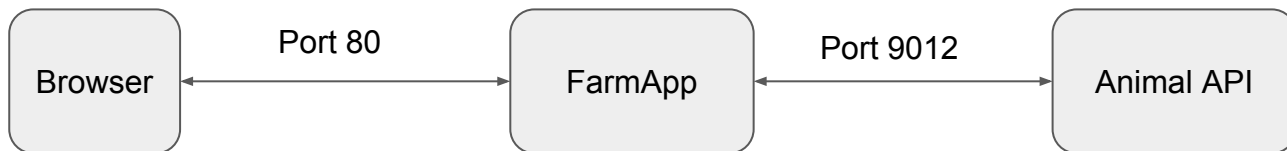
Let's check back in with Elastic Beanstalk

Beanstalk Home Page:

<https://console.aws.amazon.com/elasticbeanstalk/home?region=us-east-1#/welcome>

Example Application - FarmApp

- Front-end (Angular) on port 80
- “Animal” API on port 9012



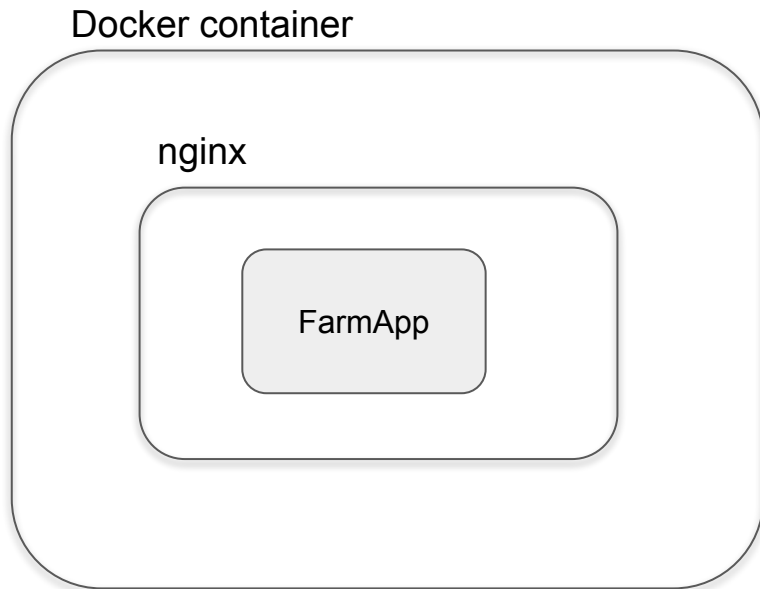
Docker

- Containerized applications
- Package your app as an image and push to multiple environments
- Revisions are tagged and stored locally or in repositories
- Visual Studio Code has great Docker extensions

<https://code.visualstudio.com/>

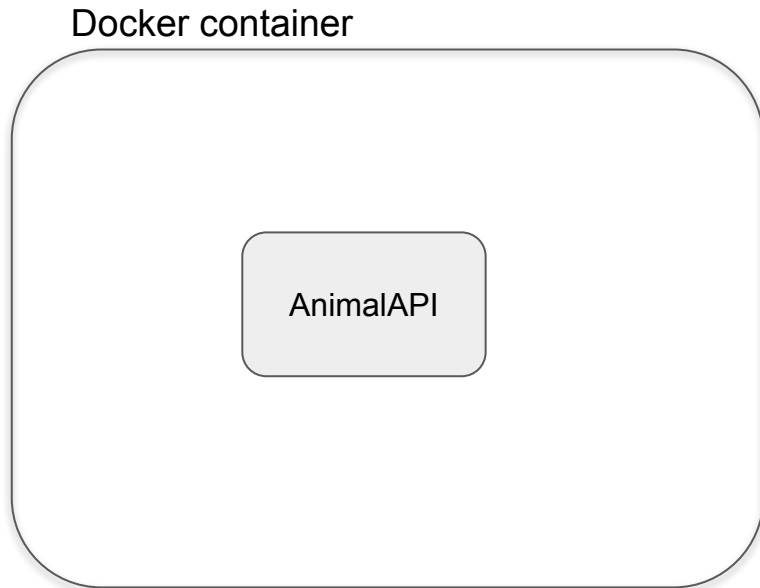
FarmApp - Front End

- Front-end (Angular) on port 80



animal-api - API Service

- Go service on port 9012
- No need for nginx since Go includes service libraries



Build...

Front-end:

```
ng build --prod
```

```
docker image build -t farm-app .
```

API:

```
go generate ./...
```

```
CGO_ENABLED=0 GOOS=linux GOARCH=amd64 go build -o build/animal-api
```

```
docker build -t animal-api .
```

...and Deploy to AWS

<https://console.aws.amazon.com/ecs/home?region=us-east-1#/repositories>

CloudWatch - Metrics, Alarms and Logs

One location for everything related to monitoring your AWS resources

<https://console.aws.amazon.com/cloudwatch/home?region=us-east-1#dashboard:>

CloudWatch Dashboards

CloudWatch Dashboards

* FarmApp

Alarms

ALARM

INSUFFICIENT

OK

Billing

Events

Rules

Event Buses

Logs

Metrics

Favorites

[+ Add a dashboard](#)

FarmApp

Add widget

Actions

Save dashboard

Front-end CPU Utilization

Percent

0.088

0.062

0.037

07:00 08:00 09:00

CPUUtilization

Front-end Memory Utilization

Percent

4.69

4.30

3.91

07:00 08:00 09:00

MemoryUtilization

Billing and Budgets

- Use the free tier to learn
- Costs can happen fast
- Configure alarms to manage costs

Billing Home Page:

<https://console.aws.amazon.com/billing/home?region=us-east-1#/>

Budgets:

<https://console.aws.amazon.com/billing/home?region=us-east-1#/budgets>

Recap

- Several ways to host your application in the cloud
- You can do everything in AWS...but you don't have to
 - CircleCI for deployments
 - GoDaddy for DNS
- Always something new to learn
 - CloudFormation, CodeBuild, CodePipeline, Lambda, etc.

Questions?